NOTES ON
PHTHISIS
IN
NEW SOUTH WALES
AND
OTHER AUSTRALASIAN COLONIES.

A PAPER READ BEFORE THE SECTION OF SANITARY SCIENCE AND HYGIENE
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NOTES ON PHTHISIS IN NEW SOUTH WALES AND OTHER AUSTRALASIAN COLONIES.

INTRODUCTION.

PULMONARY phthisis, or consumption of the lungs, is a disease of all ages and of all climates. It is found in every country in the world, from the Polar regions in the north to the farthest point in the habitable lands of the southern hemisphere. In almost every civilised land it is so prevalent that it holds a prominent position among the causes of death.

In this paper I propose to show the distribution of the disease throughout Australasia, and, having done so, will endeavour to throw some light upon the causes which lead to a high or low mortality.

Hirsch, in his work on "Geographical and Historical Pathology," says that "the reputation that Australia used to enjoy for the rarity of consumption, and for the favourable influence of its climate upon the course of the malady, has of late been shown to be a mistaken one." Is this statement correct? I think not, and I will, in the course of this paper, give my reasons for this opinion. In order that I might arrive at the truth, I have obtained the vital statistics for the seven colonies of Australasia for the period comprised within the three years 1890-91-92. From these I have made my calculations, and on them I have based the conclusions which I have set forth in this paper. I may here acknowledge my indebtedness to Mr. T A. Coghlan, Government Statistician, who has extended to me a helping hand in the compilation of the statistics of New South Wales; to the Government Statist of Victoria, the Registrars-General of the colonies of Queensland, South Australia, Western Australia, Tasmania, and New Zealand, for the kindness with which they forwarded to me the statistics and reports of their respective colonies.

It should be remembered that I am dealing with a three-year period, extending from January 1, 1890, to December 31, 1892; and that the figures quoted (unless otherwise stated) are for that period; also that by the term Australasia I mean the seven colonies—Queensland, New South Wales, Victoria, South Australia, Western Australia, Tasmania, and New Zealand.

I. GENERAL STATISTICS.

The estimated mean population of Australasia for the period was 3,841,809. The total number of deaths from all causes was 153,069, or a yearly average of 51,023. The number of deaths from phthisis was 12,243, or an average of 4,081 annually. Therefore, slightly under 8 per cent. (7·99 per cent.) of the deaths from all causes were due to phthisis.

The following table shows the number of deaths from phthisis per 100 deaths from all causes in various countries:—

TABLE A.

Russia	19·6	Holland	9·5
Belgium	18·2	Italy	9·0
Canada	16·2	Queensland	8·9
United States	14·2	Victoria	8·9
Germany	12·7	New Zealand	8·1
France	11·2	Australasia	7·9
Switzerland	11·1	South Australia	7·8
England	11·0	New South Wales	6·9
Greece	10·7	Tasmania	6·2
Scandinavia	10·2	Western Australia	5·9

NOTE.—The figures given in this table (except those for the Australasian colonies) are taken from "Mulhall's Dictionary of Statistics," and are, therefore, those for series of years prior to 1890.

If, however, we take a more accurate method of estimating the death-rate, and calculate the number of deaths from phthisis in every 1,000 inhabitants living, we find the proportion to be 1·06.

It might be well here to compare this death-rate with that of some of the countries of the world:—

TABLE B.

Death Rate from Phthisis per 1,000 Inhabitants.

Country.	Period.	Rate.
Belgium	1856-59	4·10
Scotland	1886	4·07
Sweden	1861-76	3·50
Norway	1871-75	2·53
Holland	1869-74	2·46
England	1872-76	2·20
Switzerland	1865-69	1·86
Australasia	1890-92	1·06

Australasia, therefore, has by far the lowest death-rate from phthisis.

Let us now take the statistics for each colony.

TABLE C.

Deaths from phthisis per 100 deaths from all causes.

Colony.	All causes.		Phthisis.		Rate per100 deaths
	Total.	Average.	Total.	Aver'ge	
Queensland ...	16,074	5,358	1,439	479	8·95
Victoria	52,494	17,498	4,695	1,565	8·94
New Zealand ...	18,971	6,323	1,539	513	8·11
South Australia ...	11,845	3,948	930	310	7·86
New South Wales	44,924	14,971	3,100	1,033	6·90
Tasmania ...	6,421	2,140	401	133	6·21
Western Australia	2,340	780	139	46	5·94
Australasia ...	153,069	51,023	12,243	4,081	7·99

The next table shows the mean population of each colony for the period, and the death rate from phthisis per thousand inhabitants living.

TABLE D.

Colony.	Mean population	Deaths per 1000 inhabitants.
Victoria	1,142,713	1·36
Queensland	411,767	1·16
South Australia ..	317,781	0·97
Western Australia...	47,791	0·96
Tasmania	148,523	0·90
New South Wales...	1,142,298	0·90
New Zealand... ..	630,936	0·81
Australasia	3,841,809	1·06

For comparison we may examine the mean annual rates for six of the Australasian colonies for the five-year period, 1885-1889.

TABLE E.

Colony.	1885-89.	1890-92.
Victoria	1·46	1·36
Queensland... ...	1·43	1·16
South Australia ...	1·08	0·97
New South Wales..	1·02	0·90
Tasmania	0·97	0·90
New Zealand ...	0·85	0·81

It is evident, therefore, that phthisis is decreasing in every colony.

Let us now turn to the death-rate of each of the principal cities.

The following table shows the death-rate from phthisis per hundred deaths from all causes and per thousand inhabitants living.

(In each case the suburbs are included.)

TABLE F.

City.	Total Deaths*	Phthisis*	Mean Population	Phthisis per 100, all causes.	Phthisis per 1,000 inhabitants.
Melbourne..	8,788	907	190,902	10·29	1·84
Hobart ...	758	52	33,450	6·86	1·55
Sydney ...	5,841	533	383,386	9·12	1·39
Adelaide ...	1,229	128	133,252	10·41	0·96
Brisbane ...	988	96	101,564	9·71	0·94

*Average annual number.

The proportion of deaths from phthisis in each city compared with that of the whole colony is as follows :—

Melbourne	57·95
Sydney	51·59
Adelaide	41·29
Hobart	39·09
Brisbane	20·04

The following table shows the death-rate from phthisis in some of the principal cities in the world per 1,000 inhabitants :—

TABLE G.

City.	Period.	Rate.
Paris	1872-77	4·2
Stockholm ...	1861-76	4·1
Venice	1862-85	4·04
Berlin	1869-82	3·8
Frankfort... ...	1863-83	3·5
Bonn	1867-82	3·5
Hamburg	1871-83	3·4
Copenhagen ...	1876-83	3·0

The Australasian capitals have, therefore, a very much lower death-rate than European cities.

II. DISTRIBUTION IN NEW SOUTH WALES.

Let us now consider the distribution of phthisis in each colony separately.

NEW SOUTH WALES.

New South Wales had a mean population for the period of 1,142,298. The number of deaths from all causes was 26,394 males and 18,530 females, or a total of 44,924 persons; a yearly average of 8,798 males and 6,177 females, or 14,975 persons. Of this number 1,924 males and 1,176 females, or 3,100 persons, died of phthisis, being an average of 641 males and 392 females, or 1,033 persons annually.

There were, therefore, 6·90 deaths from phthisis per hundred deaths from all causes, and 0·90 per thousand inhabitants living. If, however, we take the census population of the middle year (1891) of the period as the mean population, we find that in New South Wales the death-rate from phthisis is 0.91 per thousand inhabitants.

The following table shows the death-rate for the colony, distinguishing the city of Sydney and its suburbs, the metropolis, the country districts, and the colony as a whole :—

TABLE H.

—	Average annual No. deaths from all causes.	Average annual No. deaths from phthisis.	Deaths from phthisis p c. of total deaths.	Deaths from phthisis per 1000 inhabitants.
City ...	1,957	211	10·78	1·96
Suburbs ...	3,833	322	8·29	1·16
Metropolis	5,841	533	9·12	1·44
Country ...	9,130	500	5·48	0·66
N. S. Wales	14,971	1,033	6·90	0 91

(The census populations of 1891 are taken as mean populations for the period).

In examining the distribution of the disease in the country districts it will be most convenient to group the registration districts under the various electorates as they existed during the period (1890-92).

First of all let us take the coastal electorates, and describe them from north to south.

*I. The Richmond (Casino, Murwillumbah, Lismore, Ballina, Tweed River), 22,321. Deaths, 11 M., 10 F.—21. Rate, 1 in 3,188 inhabitants.

II. The Clarence and Grafton (Maclean, Ulmarra, Grafton), 18,073. Deaths, 16 M., 8 F.—24. Rate, 1 in 2,259.

III. The Macleay (Kempsey, Boat Harbour, Macksville), 11,530. Deaths, 8 M., 3 F.—11. Rate, 1 in 3,326.

IV. Hastings and Manning (Taree, Port Macquarie), 13,428. Deaths, 3 M., 4 F.—7. Rate, 1 in 5,755.

V. Gloucester and Durham (Clarence Town, Dungog, Patterson, Stroud, Raymond Terrace, Copeland), 14,000. Deaths, 10 M., 9 F.—19. Rate, 1 in 2,068.

VI. Hunter, Newcastle, E. and W. Maitland, Northumberland and Morpeth (Greta, E. Maitland, W. Maitland, Newcastle, Hamilton, Stockton, Lambton, Minmi, Wallsend, Waratah, Adamstown, Merewether, West Wallsend, Morpeth), 81,242. Deaths, 87 M., 77 F.—164. Rate, 1 in 1,504.

VII. Wollombi and Hawkesbury (Windsor, Riverstone, Richmond, Wiseman's Ferry, Millfield, Wollombi, St. Albans), 18,080. Deaths, 12 M., 20 F.—32. Rate, 1 in 1,695.

VIII.—Illawarra (Wollongong, Woonona, Helensburgh), 12,735. Deaths, 9 M., 2 F.—11. Rate, 1 in 3,473.

IX. Kiama (Kiama), 8,082. Deaths, 0 M., 4 F.—4. Rate, 1 in 6,061.

X. Shoalhaven (Nowra, Milton, Berry), 10,500. Deaths, 7 M., 0 F.—7. Rate, 1 in 4,500.

XI. Eden (Eden, Bega, Lyttleton, Moruya, Candelo), 16,380. Deaths, 11 M., 7 F.—18. Rate, 1 in 2,730.

SUMMARY.—DEATH-RATE FROM PHTHISIS IN COASTAL DISTRICTS.

1.	Kiama	1 in 6,061	inhabitants.
2.	Hastings and Manning ...	1 „ 5,755	„
3.	Shoalhaven	1 „ 4,500	„
4.	Illawarra	1 „ 3,473	„
5.	Macleay	1 „ 3,326	„
6.	The Richmond	1 „ 3,188	„
7.	Eden	1 „ 2,730	„
8.	Clarence and Grafton ...	1 „ 2,259	„
9.	Gloucester and Durham ...	1 „ 2,068	„
10.	Wollombi and Hawkesbury	1 „ 1,695	„
11.	Newcastle and District ...	1 „ 1,504	„

We may now turn to the figures for the inland divisions.

XII. Tenterfield (Tenterfield, Drake), 6,978. Deaths, 3 M., 2 F.—5. Rate, 1 in 4,187.

XIII. Inverell (Inverell), 8,647. Deaths, 7 M., 2 F.—9. Rate, 1 in 2,882.

XIV. Glen Innes (Glen Innes, Emmaville), 9,000. Deaths, 6 M., 3 F.—9. Rate, 1 in 3,000.

XV. New England (Armidale, Walcha, Hillgrove, Uralla, Bundarra), 19,700. Deaths, 17 M., 9 F.—26. Rate, 1 in 2,273.

XVI. Tamworth (Tamworth, Nundle, Manilla, Barraba), 14,500. Deaths, 12 M., 3 F.—15. Rate, 1 in 2,900.

XVI. Gunnedah (Gunnedah, Quirindi, Boggabri), 7,000. Deaths, 7 M., 8 F.—15. Rate, 1 in 1,400.

XVIII. Upper Hunter (Scone, Muswellbrook, Cassilis, Murrurundi, Merriwa), 13,000. Deaths, 11 M., 4 F.—15. Rate, 1 in 2,600.

XIX. Patrick's Plains (Singleton), 8,224. Deaths, 2 M., 7 F.—9. Rate, 1 in 2,741.

XX. The Nepean (Penrith, Springwood, St. Mary's), 10,100. Deaths, 13 M., 9 F.—22. Rate, 1 in 1,377.

XXI. Camden (Camden, Campbelltown, Picton, Joadja Creek, Berrima, Bowral, Robertson, Moss Vale), 22,708. Deaths, 80 M., 32 F.—112. Rate, 1 in 608.*

XXII. Goulburn and Argyle (Goulburn, Crookwell, Taralga), 21,000. Deaths, 29 M., 14 F.—43. Rate, 1 in 1,465.

XXIII. Braidwood (Braidwood), 6,300. Deaths, 5 M., 5 F.—10. Rate. 1 in 1,890.

XXIV. Queanbeyan (Queanbeyan, Bungendore, Captain's Flat), 6,500. Deaths, 4 M., 3 F.—7. Rate, 1 in 2,785.

XXV. Monaro (Cooma, Bombala, Nimitybelle, Kiandra, Adaminaby), 12,400. Deaths, 4 M., 9 F.—13. Rate, 1 in 2,861.

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*The first of the names is that of the electorate; those in brackets of the registration districts. These are followed by the population of the electorates. (Census, 1891).

* It must be remembered that in this electorate there is a home for consumptives at Picton, at which a large number of deaths from phthisis occur every year. The deaths in the electorate were registered as follows:—Camden 7. Campbelltown 12. Picton 67. Berrima 4, Bowral 20, Robertson 1, Moss Vale 1; total 112.

XXVI. Mudgee (Mudgee, Gulgong, Tambaroora, Hill End, Rylstone), 15,800. Deaths, 10 M., 7 F.—17. Rate, 1 in 2,788.

XXVII. Wellington (Wellington), 6,150. Deaths, 7 M., 5 F.—12. Rate, 1 in 1,537.

XXVIII. Orange (Orange), 11,900. Deaths, 20 M., 8 F.—28. Rate, 1 in 1,275.

XXIX. Bathurst, E. & W. Macquarie (Bathurst, Sunny Corner, Sofala, Wattle Flat), 23,132. Deaths, 29 M., 23 F.—52. Rate, 1 in 1,334.

XXX. Molong (Molong, Cargo, Canowindra), 8,000. Deaths, 4 M., 2 F.—6. Rate, 1 in 4,000.

XXXI. Carcoar (Carcoar, Tuena, Cowra, Blayney, Mount MacDonald), 13,873. Deaths, 5 M., 3 F.—8. Rate, 1 in 5,202.

XXXII. Hartley (Lithgow, Katoomba, Oberon), 12,369. Deaths, 3 M., 4 F.—7. Rate, 1 in 5,301.

XXXIII. Yass Plains (Yass, Gunning), 9,000. Deaths, 6 M., 6 F.—12. Rate, 1 in 2,250.

XXXIV. Burrowa (Burrowa), 4,600. Deaths, 1 M., 2 F.—3. Rate, 1 in 4,600.

XXXV. Gundagai (Gundagai, Cootamundra), 8,300. Deaths, 7 M., 4 F.—11. Rate, 1 in 2,263.

XXXVI. Young (Young, Murrumburrah), 13,000. Deaths, 12 M., 5 F.—17. Rate, 1 in 2,294.

XXXVII. Tumut (Tumut, Batlow, Adelong), 7,000. Deaths, 7 M., 1 F.—8. Rate, 1 in 2,625.

XXXVIII. The Gwydir (Warialda, Moree, Bingara), 8,300. Deaths, 1 M., 3 F.—4. Rate, 1 in 6,225.

XXXIX. The Bogan and Namoi (Peak Hill, Dubbo, Nyngan, Coonamble, Coonabarabran, Warren, Narrabri, Walgett), 30,665. Deaths, 26 M., 21 F.—47. Rate, 1 in 1,957.

XL. Forbes (Forbes, Parkes, Condobolin), 13,131. Deaths, 9 M., 4 F.—13. Rate, 1 in 3,030.

XLI. Grenfell (Grenfell, Barmedman, Temora, Marsden), 7,218. Deaths, 11 M., 6 F.—17. Rate, 1 in 1,273.

XLII. The Murrumbidgee (Wagga, Narrandera, Urana, Hillston, Junee), 25,600. Deaths, 37 M., 20 F.—57. Rate, 1 in 1,315.

XLIII. The Hume and Albury (Albury, Tumberumba, Corowra, Germanton), 17,718. Deaths, 26 M., 15 F.—41. Rate, 1 in 1,296.

XLIV. The Murray (Moulamein, Moama, Jerilderie, Deniliquin, Tocumwal), 8,228. Deaths, 14 M., 9 F.—23. Rate, 1 in 1,073.

XLV. Bourke (Bourke, Brewarrina, Barringun, Cobar, Collarendabri), 13,800. Deaths, 26 M., 5 F.—31. Rate, 1 in 1,658.

XLVI. Balranald (Hay, Mossgiel, Balranald, Hillston, Nymagee, Mount Hope), 11,514. Deaths, 26 M., 11 F.—37. Rate, 1 in 933.

XLVII. Wilcannia (Wilcannia), 2,704. Deaths, 6 M., 1 F.—7. Rate, 1 in 1,159.

XLVIII. Sturt (Broken Hill, Milparinka, Silverton, Tibooburra), 26,583. Deaths, 23 M., 19 F.—42. Rate, 1 in 1,898.

XLIX. Wentworth (Wentworth, Menindie), 3,410. Deaths, 2 M., 1 F.—3. Rate, 1 in 3,410.

SUMMARY TABLE.

Electorates with Death-rate from Phthisis.

Gwydir	1 in	6,225	inhabitants.
*Kiama	,,	6,061	,,
*Hastings and Manning	,,	5,755	,,
Hartley	,,	5,301	,,
Carcoar	,,	5,202	,,
Burrowa	,,	4,600	,,
*Shoalhaven	,,	4,500	,,
Tenterfield	,,	4,187	,,
Molong	,,	4,000	,,
*Illawarra	,,	3,473	,,
Wentworth	,,	3,410	,,
*Macleay	,,	3,326	,,
*The Richmond	,,	3,188	,,
Forbes	,,	3,030	,,
Glen Innes	,,	3,000	,,
Tamworth	,,	1,900	,,
Inverell	,,	2,882	,,
Monaro	,,	2,861	,,
Mudgee	,,	2,788	,,
Queanbeyan	,,	2,785	,,
Patrick's Plains	,,	2,741	,,
*Eden	,,	2,730	,,
Tumut	,,	2,625	,,
Upper Hunter	,,	2,600	,,
Young	,,	2,294	,,
New England	,,	2,273	,,
Gundagai	,,	2,263	,,
*Clarence and Grafton	,,	2,259	,,
Yass Plains	,,	2,250	,,
*Gloucester and Durham	,,	2,068	,,
The Namoi and Bogan	,,	1,957	,,
Sturt	,,	1,898	,,
Braidwood	,,	1,890	,,
*Wollombi and the Hawkesbury	,,	1,695	,,
Bourke	,,	1,658	,,
Wellington	,,	1,537	,,
*Newcastle and district	,,	1,504	,,
Argyle and Goulburn	,,	1,465	,,
Gunnedah	,,	1,400	,,
Nepean	,,	1,377	,,
Bathurst, and E. and W. Macquarie	,,	1,334	,,
The Murrumbidgee	,,	1,315	,,
Albury and The Hume	,,	1,296	,,
Orange	,,	1,275	,,
Grenfell	,,	1,273	,,
Wilcannia	,,	1,159	,,
The Murray	,,	1,073	,,
Balranald	,,	933	,,
Camden	,,	608	,,
†Central Cumberland & P'matta	,,	360	,,

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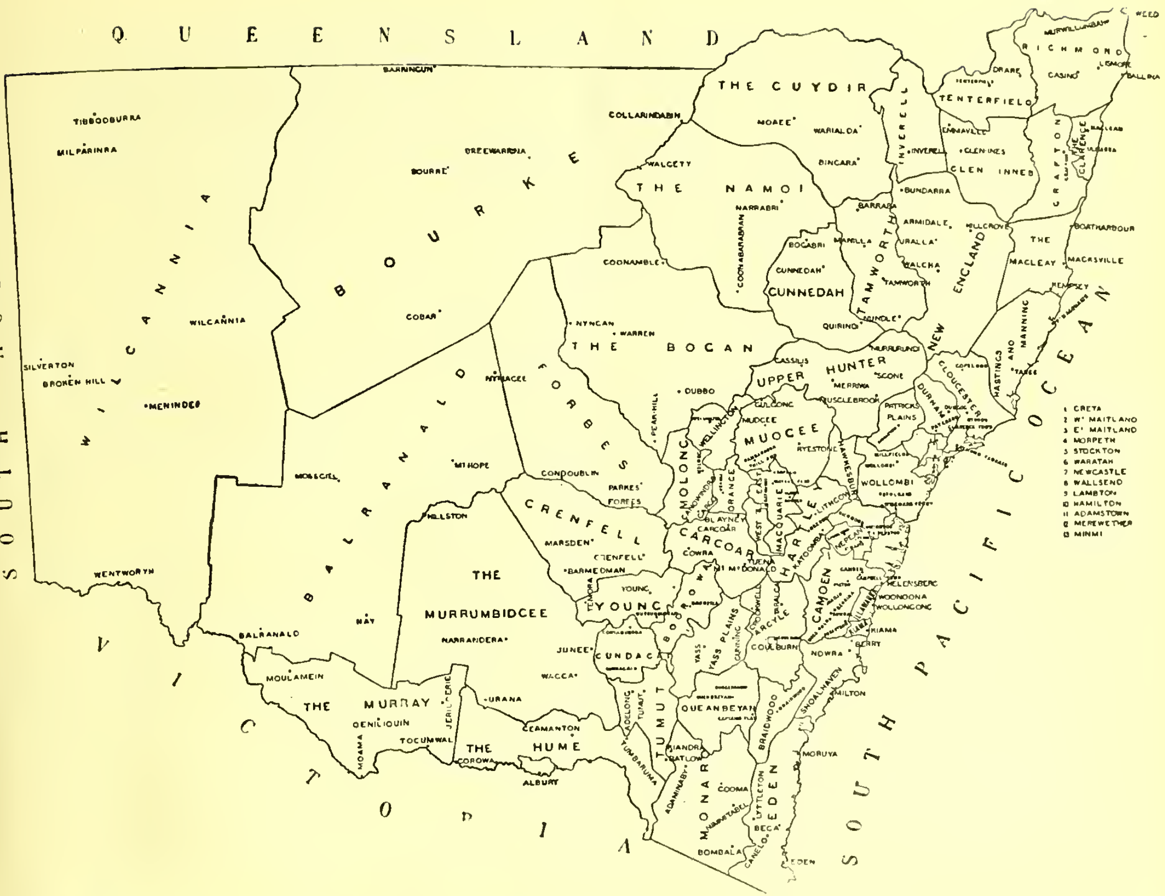
* Coastal electorates.

† Central Cumberland and Parramatta contain various Government asylums, &c., in which most of the deaths in the electorates have occurred.



Map showing country electorates as they existed during 1890-91-92.

Errata.—For "Guydir" read "Gwydir," "Collarendabin" read "Collarendabri," "Helensberg" read "Helensburgh," "Canelo" read "Candelo."

The electorate of Wilcannia should be subdivided into three, viz.—North-eastern portion, Wilcannia; north-western, Sturt; and southern, Wentworth.

Table J shows the registration districts in which no deaths occurred from phthisis during the period, and also the number of deaths from all causes in each district during the same period.

TABLE J.

District.	Electorate.	Deaths—All causes.
Tuena	Carcoar ...	109
Emmaville ...	Glen Innes ...	76
Oberon	Hartley ...	64
Barraba	Tamworth ...	55
Eden	Eden... ...	51
Adaminaby ...	Monaro ...	45
Taralga	Argyle ..	44
Canowindra ...	Molong ...	43
Nundle	Tamworth ...	32
Mount Hope ..	Balranald ...	29
Joadja Creek ...	Camden ...	27
Manilla	Tamworth ...	25
Captain's Flat ...	Queanbeyan...	24
Barringun ...	Bourke ..	15
Barmedman ...	Grenfell ...	14
Marsden	" ...	14
Mount Macdonald	Carcoar ...	11
Lyttleton ...	Eden... ...	10
Millfield	Wollombi ...	10
Kiandra	Monaro ...	5

If we now divide the Colony into larger groups, according to locality, we obtain the following information :—

I. Western Group.--Electorates of Bourke, Sturt, Wilcannia, Balranald and Wentworth : Estimated mean population, 52,000 ; deaths from phthisis, 95 ; rate, 1 in 1,644.

II. The Murray Group.—Electorates of the Murray, the Hume, and Albury : Population, 25,000 ; deaths from phthisis, 64 ; rate, 1 in 1,174.

III. The Murrumbidgee Group.—Electorates of the Murrumbidgee, and part of Balranald : Population, 35,000 ; deaths from phthisis, 72 ; rate, 1 in 1,458.

IV. Young Group.—Electorates of Grenfell and Young : Population, 33,650 ; deaths from phthisis, 49 rate, 1 in 2,059.

V. The Bogan Group.—Electorates of the Bogan and Forbes: Population, 36,850; deaths from phthisis, 49; rate, 1 in 2,256.

VI. The Namoi and Gwydir Group.—Electorates of the Gwydir, the Namoi, and Gunnedah: Population, 25,850; deaths from phthisis, 30; rate, 1 in 2,585.

VII. New England Group,—Electorates of Tenterfield, Inverell, Glen Innes, New England, and Tamworth: Population, 60,150; deaths from phthisis, 64; rate, 1 in 2,821.

VIII. North Coast Group.—Electorates of the Richmond, Clarence, Grafton, the Macleay, the Hastings and Manning: Population, 67,600; deaths from phthisis, 63; rate, 1 in 3,219.

IX. The Hunter Group.—Electorates of the Upper Hunter, Gloucester, Durham, Patrick's Plains, the Hunter, Newcastle, East Maitland, West Maitland, and Morpeth: Population, 120,900; deaths from phthisis, 207; rate, 1 in 1,752.

X. Bathurst Group.—Electorates of Bathurst, East and West Macquarie, Orange, Molong, and Carcoar: Population, 57,850; deaths from phthisis, 91; rate, 1 in 1,906.

XI. The Hawkesbury and Nepean Group.—Electorates of Wollombi, Hawkesbury, Hartley, The Nepean, and Camden: Population, 62,600; deaths from phthisis, 180; rate, 1 in 1,043.

XII. Mudgee Group.—Electorates of Mudgee and Wellington: Population, 22,350; deaths from phthisis, 29; rate, 1 in 2,310.

XIII. Goulburn Group.—Electorates of Goulburn and Argyle: Population, 22,000; deaths from phthisis, 43; rate, 1 in 1,537.

XIV. Gundagai Group.—Electorates of Gundagai and Tumut: Population, 15,600; deaths from phthisis, 19; rate, 1 in 2,460.

XV. Monaro Group.—Electorates of Monaro, Queanbeyan, and Braidwood: Population, 25,700; deaths from phthisis, 30; rate, 1 in 2,750.

XVI. South Coast Group.—Electorates of Kiama, Illawarra, Shoalhaven, and Eden: Population, 48,800; deaths from phthisis, 41; rate, 1 in 3,571.

SUMMARY TABLE.—GROUPS.

South Coast	1 in	3,571	inhabitants.
North Coast	,,	3,219	,,
New England...	,,	2,821	,,
Namoi and Gwydir ...	,,	2,585	,,
Monaro	,,	2,570	,,
Gundagai	,,	2,460	,,
Mudgee	,,	2,310	,,
The Bogan	,,	2,256	,,
Young	,,	2,059	,,
Bathurst	,,	1,906	,,
The Hunter	,,	1,752	,,
Western	,,	1,644	,,
Goulburn	,,	1 537	,,
The Murrumbidgee	,,	1,458	,,
The Murray	,,	1,174	,,
Hawkesbury and Nepean ...	,,	1,043	,,

III. QUEENSLAND.

Queensland had an estimated mean population (for the period) of 411,767 persons. The number of deaths from all causes was 10,265 males, and 5,809 females, or 16,074 persons; a yearly average of 3,422 males and 1,936 females, or 5,358 persons. During the period the deaths from phthisis were as follows, viz.:—1,074 males and 365 females, or 1,439—being an average of 358 males and 122 females, or 480 persons annually. There were, therefore, 8·95 deaths from phthisis per hundred deaths from all causes, and 1·16 per thousand inhabitants living.

Table K shows the various registration districts throughout the colony, together with the populations according to the census of 1891, the number of deaths from phthisis (M. and F.) and the death-rate for each district for the period.

TABLE K.

No.	Name.	Deaths, Phthisis. M.	F.	Total	Population	Rate—1 in
1	Somerset	7	0	7	1,470	630
2	Palmer	0	1	1	838	2,514
3	Cook	14	4	18	5,080	847
4	Woothakata ...	1	0	1	1,399	4,197
5	Etheridge ...	2	0	2	1,761	2,641
6	Bourke	1	1	2	4,962	7,443
7	Cloncurry ...	0	0	0	1,211	—
8	Hughenden ...	2	1	3	2,463	2,463
9	Cairns	65	12	77	7,024	273
10	Herberton ...	3	0	3	3,477	3,477
11	Cardwell... ...	53	5	58	3,435	180
12	Kennedy ...	44	16	60	18,825	941
13	Townsville ...	63	15	78	13,016	500
14	Bowen	3	1	4	2,788	2,091
15	Mackay	107	17	124	10,538	255
16	St. Laurence ...	0	0	0	967	—
17	Peak Downs ...	0	0	0	313	—
18	Clermont ...	3	1	4	5,288	3,966
19	Westwood ..	19	8	27	7,746	860
20	Rockhampton ...	34	15	49	11,629	712
21	Gladstone ...	1	3	4	3,306	2,479
22	Leichhardt ...	8	2	10	4,268	1,280
23	Springsure ...	2	2	4	1,887	1,415
24	Tambo	2	0	2	886	1,326
25	Blackall	2	2	4	4,529	3,397
26	Aramac	3	0	3	2,765	2,765
27	Diamantina ...	0	0	0	1,160	—
28	Marathon ...	2	1	3	1,991	1,991
29	Bundaberg ...	123	13	136	13,712	302
30	Wide Bay ...	8	2	10	4,647	1,394
31	Maryborough ...	39	11	50	12,178	730
32	Tiaro	3	1	4	2,676	2,007
33	Gympie	19	20	39	13,607	1,046
34	Burnett	3	1	4	4,465	3,349
35	Taroom	0	1	1	812	2,436
36	Maranoa ...	5	3	8	4,255	4,595
37	Charleville ..	8	2	10	3,211	963
38	Warrego	0	0	0	2,229	—
39	Cunnamulla ...	1	0	1	2,114	6,342
40	Balonne	3	0	3	3,021	3,021
41	Darling Downs N.	1	0	1	4,636	13,908
42	Dalby	0	1	1	1,378	4,134
43	Darling D'wns W.	0	0	0	1,273	—
44	Darling Downs C.	4	2	6	7,561	3,780
45	Darling Downs E.	3	2	5	6,430	3,858
46	Warwick... ...	9	5	14	3,402	729
47	Stanthorpe ...	3	0	3	1,869	1,869
48	Highfields ...	0	0	0	3,067	—
49	Drayton and Toowoomba ...	18	13	31	10,759	1,041
50	Stanley	0	1	1	2,125	6,375
51	Caboolture ...	10	8	18	18,591	3,098
52	Moreton E. ...	71	9	80	9,375	351
53	Brisbane... ...	187	102	289	56,075	592
54	Toowong... ...	15	8	23	7,413	966
55	Enoggera ...	20	18	38	17,473	1,379
56	Oxley	26	18	44	7,799	531
57	Ipswich	24	8	32	10,190	955
58	Moreton W. ...	8	6	14	17,062	3,656
59	Fassifern ...	1	0	1	6,817	20,451
60	Logan	21	3	24	8,474	1,059

IV. TASMANIA.

The estimated mean population of the island of Tasmania for 1890-92 was 148,523.

During the period there were 6,421 deaths from all causes. Of these, 3,713 were males and 2,708 females. The average annual number of deaths was therefore 2,140.

Of these, 401 (223 males and 178 females) were caused by phthisis—133 yearly.

There were, therefore, 6·21 deaths from phthisis per hundred deaths from all causes, while the death-rate from phthisis per thousand inhabitants equalled that of New South Wales, viz., 0·90.

Table L. gives the Registration Districts in groups, together with the population (Census 1891), the number of deaths from phthisis, and the death-rate for the colony of Tasmania.

TABLE L.

District.	Population	Deaths. Phthisis.	Rate—1 in
Chief Urban Districts—			
Hobart	33,450	161	623
Launceston	21,316	79	809
North-eastern Division—			
Beaconsfield	2,097	11	572
Fingal	3,404	2	5,106
Frankford	858	3	858
George Town	586	1	1,758
Lefroy	924	1	2,772
Evandale	3,262	3	3,262
Portland	1,599	2	2,398
Ringarooma	4,783	7	2,050
Westbury	3,681	8	1,380
Total	21,194	38	1,290
North-western Division—			
Deloraine	4,913	9	1,638
Emu Bay	4,001	10	1,200
Stanley	1,625	4	1,219
Mersey	4,069	2	6,103
Port Sorell	456	3	456
Port Frederick	2,312	1	6,936
Sheffield	2,217	2	3,325
Ulverstone	5,734	8	2,150
Waratah	1,888	4	1,416
Montagu	300	3	300
Total	27,515	46	1,794
Midland Division—			
Bothwell...	1,378	2	2,067
Campbelltown	2,695	11	735
Green Ponds	1,303	1	3,909
Hamilton	1,802	2	2,703
Longford	5,429	9	1,809
Oatlands...	3,330	3	3,330
Total	15,937	28	1,707
South-eastern Division—			
Brighton...	2,111	6	1,055
Clarenec	1,063	1	3,189
Glamorgan	1,001	0	—
Gordon	940	1	2,820
Kingston...	1,161	4	870
New Norfolk	4,253	9	1,418
Port Cygnet	1,561	2	2,341
Ralph's Bay	285	1	855
Richmond	2,561	5	1,536
Sorell	2,087	6	1,043
Spring Bay	918	0	—
Tasman's Peninsula ...	748	4	561
Victoria	985	1	2,955
Total	19,674	48	1,229
South-western Division—			
Southport	772	0	—
Esperance	658	2	987
Franklin...	1,274	3	1,274
Geeveston	1,000	2	1,500
Strahan	3,877	2	5,815
Total	7,581	9	2,527

V. VICTORIA.

It is to be regretted that it is impossible to give the distribution of the disease throughout the colony of Victoria. I am, however, able to give the following figures :—

The estimated mean population of the colony was 1,142,713. There were 52,494 deaths from all causes, viz., 30,133 males and 22,361 females, or a yearly average of 17,498 persons. Of these 4,695 (2,822 males and 1,873 females) died of phthisis, being an average of 1,565 persons every year.

The deaths from phthisis amounted to 8·94 per cent. of the deaths from all causes, and 1·36 per thousand of the population. It may here be stated that Victoria shows the highest death-rate per thousand inhabitants of all the Australian colonies.

VI. SOUTH AUSTRALIA

In the colony of South Australia phthisis holds the foremost place in the death returns for 1890-91-92, no less than 930 deaths from that cause being registered.

Strangely enough, old age holds second place in the records, 890 deaths being returned.

The estimated mean population of the province was 317,781. The total number of deaths was 11,845, or 3,948 annually. Of these, 930 (500 males and 430 females)—or 310 annually—succumbed to phthisis. The death-rate for the disease was 7·86 per cent. of deaths from all causes, and 0·97 per thousand inhabitants.

In the Northern Territory accurate statistics are available for the years 1891 and 1892 only. The estimated mean population for the two-year period was 5,089. The total number of deaths was 59, and there were eight deaths from phthisis (seven males and one female).

VII. WESTERN AUSTRALIA.

Very little can be said concerning the distribution of the complaint in the large western colony. Although containing an area of over a million square miles, the estimated mean population (1890-92) is only 47,791.

The total number of deaths from all causes was 2,340, or 780 annually. Of these 139 (46 per annum) were due to phthisis. The deaths from this disease amounted to 5·94 per cent. of all deaths, and 0·96 per thousand inhabitants.

It is impossible to record accurately the distribution of the disease in such a large tract of land, containing as it does so small a population.

VIII. New Zealand.

The estimated mean population of the colony of New Zealand for the period was 630,936. During the same period the deaths from all causes totalled 18,971, or 6,323 annually. Of these, 1,539, viz., 829 males and 710 females, were caused by phthisis; being an annual average of 513 persons. There were therefore 8·11 deaths from phthisis per hundred deaths from all causes, or 0·81 per thousand inhabitants.

New Zealand has the lowest death-rate per thousand inhabitants of any of the Australasian colonies.

Table M. contains the provinces of the North and South Islands, with the populations, number of deaths from phthisis, and the rate according to population of the province.

Table M.

—	Province.	Est. mean Pop'ation.	Deaths, Phthisis.			Rate, 1 in.
			M.	F.	Total	
North Island..	Auckland ..	136,824	232	142	374	1,097
	Taranaki.. ..	21,659	22	21	43	1,511
	Hawke's Bay..	28,450	57	44	101	845
	Wellington ..	94,711	96	102	198	1,435
South Island	Marlborough ..	12,756	12	11	23	1,663
	Nelson	34,236	46	37	83	1.234
	Westland ..	16,230	30	11	41	1,187
	Canterbury ..	130,658	121	159	280	1,399
	Otago.. ..	156,725	211	183	394	1,193

The following table shows the number of deaths from phthisis for the four boroughs of Auckland, Wellington, Christchurch and Dunedin :—

Borough.	1890.	1891.	1892.	Total.
Auckland ..	38	40	32	110
Wellington ...	37	28	31	96
Christchurch ..	14	8	25	47
Dunedin... ...	35	36	31	102
—	124	112	119	355

IX. Influence of Age and Sex.

Table N. shows the numbers of those who died of phthisis at each age group. The table shows that in 12,072 cases

2,080 were aged between 25 and 30 years.
1,848 " " " 20 " 25 "
1,688 " " " 30 " 35 "
1,293 " " " 35 " 40 "
952 " " " 40 " 45 "
804 " " " 45 " 50 "
790 were aged between 15 and 20 years.
749 " " " 50 " 55 "
585 " " " 55 " 60 "
485 " " " 60 " 65 "
250 " " " 65 " 70 "
162 " " under 5 "
157 " " between 10 " 15 "
101 " " " 70 " 75 "
69 " " " 5 " 10 "
59 " " upwards of 75 "

(These figures are those of males and females in New South Wales, Queensland, Tasmania, Victoria, South Australia, and New Zealand. No statistics of age for Western Australia are available.)

In New South Wales phthisis is not frequent until the age 10-15 is passed. Then the mortality increases rapidly to the thirtieth year, after which it slowly declines as the age advances. No age-group is exempt for either male or female.

In Queensland, among males there is a decline from birth up to 15 years; then a sudden rise in the 15-20 period; a most alarming increase during the period 20-25; and a very gradual decline till the highest ages are reached. Among females there is a corresponding decline from birth to 15 years; then a rise till the highest point is reached at age 25-30; then a decline till the period 60-65 is passed, after which no deaths are recorded.

In Tasmania no deaths are recorded among males between 5-10 years, while from birth up to five years and from 10-15 years there are very few. Then the rate rises until it reaches a maximum at the period 25-30. The decline is then gradual to 50-55, the rate rises again at 55-60, then falls to 70, when a slight rise again occurs; and above 75 deaths from phthisis are rare. Among females, after five years there is a gradual increase until the period 30-35, when there is a sudden fall to 40-45; then a slight rise in the following period, and after that a fall, until at the period 65-70 no deaths are recorded. From 70-75 deaths are rare; above 75 there are none.

In Victoria the highest mortality occurs between 25-30 years. The rate then declines until the highest ages are reached; no period being exempt for either sex.

In South Australia the rate during the first five years is slightly higher than during the following ten years. Then it increases until it reaches a maximum at 30-35, when it gradually declines.

In the Northern Territory, of the six persons who died in 1891, five were males and one a female. Of these, five died between 20-40 years of age, and one between 40-60. In 1892 there were two deaths, both males, aged between 40-60.

In New Zealand the maximum is reached at age 20-25, but the decline afterwards is very gradual. There is a slight rise at age 50-55 among males, and at ages 45-55 among females.

TABLE O.

Males.

	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75 Upwards
New South Wales	16	9	16	64	220	313	295	241	199	153	150	92	67	33	15	9
Queensland	7	4	1	86	220	205	179	103	74	61	55	29	27	12	5	1
Tasmania	4	0	5	19	35	45	31	26	15	10	8	10	4	4	6	2
Victoria	24	12	17	94	347	443	346	273	200	196	223	235	231	113	40	27
South Australia	7	4	2	25	73	75	81	61	44	40	31	22	18	13	2	2
New Zealand	8	3	15	54	132	111	90	94	64	63	71	61	34	21	5	3

Females.

	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75 Upwards
New South Wales	23	9	17	87	169	246	169	138	99	85	45	28	27	21	8	4
Queensland	11	4	2	27	57	79	55	44	29	23	16	10	6	—	—	—
Tasmania	6	2	3	13	35	35	36	16	6	10	5	4	4	—	2	—
Victoria	26	15	44	165	342	362	257	177	147	105	84	60	49	24	11	4
South Australia	10	2	9	35	66	63	72	50	40	20	23	18	8	6	4	4
New Zealand	20	5	26	111	152	103	77	90	35	38	38	16	10	3	3	3

Total.

	Under 5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75	75 Upwards
New South Wales	39	18	33	151	389	559	464	379	298	238	195	120	94	54	23	13
Queensland	18	8	3	113	277	284	234	147	103	84	71	39	33	12	5	1
Tasmania	10	2	8	32	70	80	67	42	21	20	13	14	8	4	8	2
Victoria	50	27	61	259	689	805	603	450	347	301	307	295	280	137	51	31
South Australia	17	6	11	60	139	138	153	111	84	60	54	40	26	19	6	6
New Zealand	28	8	41	175	284	214	167	164	99	101	109	77	44	24	8	6

TABLE P.

Highest Mortality Periods.

Colony.	Males.	Females.	Both Sexes.
New South Wales...	25-30	25-30	25-30
Queensland ...	20-25	25-30	25-30
Tasmania	25-30	30-35	25-30
Victoria	25-30	25-30	25-30
South Australia ...	30-35	30-35	30-35
New Zealand ...	20-25	20-25	20-25

The following table shows the census population of each colony in 1891, the average annual number of deaths from phthisis (for males and females), and also the rate.

TABLE Q.

Colony.	MALES.			FEMALES.		
	Population.*	†Deaths, Phthisis.	Rate, 1 in	Population.*	†Deaths, Phthisis.	Rate, 1 in
New South Wales	612,562	641	955	519,672	392	1,325
Queensland ..	223,779	358	625	169,939	122	1,392
Tasmania .	77,560	74	1,048	69,107	59	1,171
Victoria	586,634	940	624	539,109	624	862
South Australia..	157,759	166	938	152,667	143	1,067
New Zealand ..	355,738	275	1,293	312,913	236	1,325

*Census, 1891.
†Average annual number.

From Table Q. we find the colonies stand in the following order :—

MALES.

N. Zealand..1 death (phthisis) in every 1,293 Male inhabitants.
Tasmania ...1 „ „ „ 1,048 „
N. S. Wales 1 „ „ „ 955 „
S. Australia 1 „ „ „ 938 „
Queensland 1 „ „ „ 625 „
Victoria ...1 „ „ „ 624 „

FEMALES.

Queensland 1 death (phthisis) in every 1,393 Female inhabitants.
N. S. W. } 1 „ „ „ 1,325 „
N. Zeal'd }
Tasmania ...1 „ „ „ 1,171 „
S. Australia 1 „ „ „ 1,067 „
Victoria ...1 „ „ „ 862 „

These figures are extremely interesting. New Zealand has a low rate for both sexes, as also have Tasmania and New South Wales. Victoria has a very high rate, while South Australia follows it closely. But the most interesting item is that of Queensland. As regards males it has the worst rate on the list, but for females it has the best. The reason of this will be given fully later on, but it might be mentioned here that the death rate (phthisis) of Queensland is swollen by the great mortality among the kanakas every year.

X. BIRTHPLACES, NATIONALITY, &c.

It is to be regretted that no statistics of birthplaces or nationality are available for most of the colonies. Australia is, as all know well, a health resort for many persons from Great Britain and other European countries. Many of the cases which come to our shores come only to breathe their last shortly after their arrival. Almost every vessel which arrives brings one or more consumptives in the last stage of the malady to swell the death-rate. This being so, I have endeavoured to ascertain the nationality, place of birth, and length of residence in the colony of each fatal case. With the exception of Queensland and New Zealand, I cannot find any records.

From a table compiled by the Registrar-General of New Zealand (published in the official work, "Statistics of New Zealand, 1892—Vital Statistics") it would appear that, of 524 persons who died from phthisis in 1892, only 209 (90 males and 119 females) were born in the colony. Now, at the time of the census in 1891, there were about 183,000 of each sex, or 366,000 natives of New Zealand, excluding Maoris. This would show one death from phthisis in every 1,750 of native-born population, or ·572 per thousand native-born inhabitants. This table also shows that phthisis is relatively more frequent among females than males (native-born), and also that the highest mortality period occurs at an earlier age among the native-born population than among those born outside the colony.

With regard to the length of residence in Queensland, and the birth-places of persons who died of phthisis, I must refer to the reports of the Registrar-General for the various years.

In these tables Queensland is set down as the birth-place of 46 persons in 1890, 34 in 1891, and 36 in 1892, or a total of 116 in the three years— a yearly average of nearly 39. The native-born population at the census of 1891 amounted to 176,971, so that there was one death for every 4537 inhabitants who claimed Queensland as their birth-place.

In the three years there were 436 deaths among the Polynesians, 281 among the English, 241 among the Irish, and 127 among the Scotch, while other countries claimed smaller numbers. All the Australasian colonies (including Queensland and New Zealand) claimed 182 of the victims to phthisis.

During the three years 127 persons died from phthisis whose length of residence in Queensland did not exceed one year. Their nationalities were as follows :—Polynesia 72, England 16, Queensland 10, Scotland 8 ; New South Wales, South Australia, Victoria, Tasmania, and U.S. America 1 each ; while all other countries claim five.

Considering these figures carefully and impartially, we are forced to two conclusions : First, that the Australian-born population is not subject to pulmonary phthisis ; and, second, that the natives of Polynesia succumb to phthisis to a remarkable degree. It seems also safe to say that the Queensland climate is the cause of incipient phthisis among the South Sea Islanders ; for, of 29 persons who died after less than three months' residence in the colony, only four were Polynesians, showing that the disease must have been contracted (in the majority of cases, at any rate) within the boundaries of Queensland.

The tables published by the Registrar-General of Queensland are invaluable in the study of this disease, and it is much to be regretted that similar tables for the other Australasian colonies are not available.

XI. OCCUPATION.

Unfortunately the occupations, as given in the official returns of those who have died from phthisis, do not show the nature of the work done by the deceased. Vague terms, such as labourer, married woman, nurse, &c., are used without any qualification. It is obvious, therefore, that little use can be made of the information thus given. This is greatly to be regretted, as there can be little doubt that the occupation of a phthisical persons plays a very important part in the history of the disease.

XII. METEOROLOGICAL CONDITIONS.

It is interesting to study the connection between the death-rate from phthisis and the prevailing meteorological conditions.

NEW SOUTH WALES.

The following table shows the number of deaths from phthisis, the mean height of the barometer, mean temperature in the shade, and the rainfall for each month, for Sydney and suburbs :—

TABLE R.

Month.	Deaths, Phthisis	Mean shade temperature.	Mean height barometer.	RAINFALL.	
				Depth, in.	No. days.
1890					
January ...	47	71·6	30·033	6·02	15
February ...	32	71·2	29·959	15·98	20
March ...	36	69·5	30·088	17·13	25
April ...	56	63·7	30·168	2·46	15
May ...	58	59·0	30·201	8·45	19
June ...	54	57·2	29·985	10·78	19
July ...	56	51·3	30·064	9·01	17
August ...	52	54·1	30·049	1·24	6
September...	52	59·6	30·012	2·17	9
October ...	34	65·4	29·809	1·60	9
November ...	38	66·4	29·924	4·02	12
December ...	31	68·2	29·946	2·56	18
1891					
January ..	28	73·5	29·954	4·41	18
February ...	36	69·1	30 015	2·56	12
March ...	37	69.2	30·170	6·20	18
April ...	55	63·9	30·223	4·70	19
May ...	50	57·9	30·373	2·78	20
June ...	40	56·0	29·993	14·50	19

TABLE R—*Continued.*

Month.	Deaths, Phthisis	Mean shade temperature.	Mean height barometer.	Rainfall.	
				Depth, in.	No. days.
July ...	45	52·3	30·123	3·81	18
August ...	45	54·9	30·172	3·53	17
September...	50	57·4	30·153	5·83	15
October ...	52	62·5	30·055	1·77	14
November ...	56	66·0	30·052	3·29	16
December ...	61	71·4	29·888	1·69	14
1892					
January ...	50	70·5	29·978	6·38	13
February ...	40	72·0	30·054	4·44	8
March ...	43	70·1	30·006	18·46	21
April ...	36	62·8	30·099	4·19	19
May ...	44	58·7	30·198	3·01	19
June ...	32	59·8	30·163	1·93	10
July ...	41	52·6	30·199	4·64	16
August ...	48	54·4	30·031	4·80	16
September...	38	57·8	29·989	6·77	16
October ...	48	62·6	30·035	4·86	19
November ...	43	66·4	29·990	2·88	16
December ...	36	68·3	29·895	6·74	16

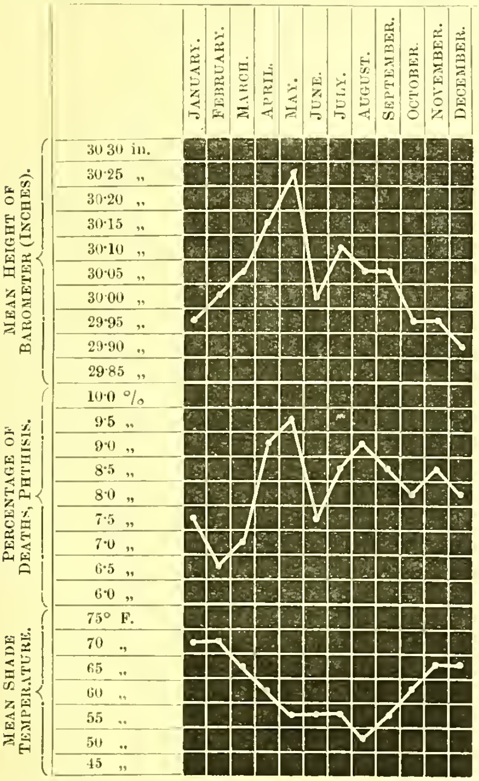


Chart showing mean height of Barometer, percentage of deaths from Phthisis, and mean temperature, Sydney and Suburbs, for each month, 1890-91-92.

On examining the above chart a distinct parallelism may be observed between the curves representing the barometric readings and the death-rate. A high reading of the barometer corresponds to a high death-rate, and a low barometric reading to a low rate. Temperature and rainfall do not appear to influence the death-rate to any degree. It will be seen that the highest death-rate (9·5 p.c.) is found in May, while April and August come next with 9·0 p.c. each.

Table S. shows the number of deaths occurring in each month in the country districts of the colony.

TABLE S.

(Sydney and suburbs are not included.)

January ...	129	May ...	110	September	117
February	101	June ...	135	October ...	133
March ...	125	July ...	139	November	143
April ...	118	August ...	135	December	135

Ratio per cent. for four periods of year.

—	Jan.-March.	April - June.	July-Sept.	Oct.-Dec.	—
Metropolis ...	21·9	26·5	26·6	25·0	100·0
Country ...	23·3	23·9	25·7	27·1	100·0

In Sydney and suburbs the highest death-rate occurs in the third quarter, but there is little difference between it and the second. In the country districts the fourth quarter has the highest percentage of deaths.

QUEENSLAND.

I need not go into the details of the relation between the death-rate from phthisis and the atmospheric conditions in Queensland, Dr. David Hardie having recently dealt with the subject fully. Dr. Hardie's conclusions are as follows:—

1. That low barometric pressure is generally associated with a low death-rate from phthisis.

2. That a comparatively low temperature in summer and autumn, and a high temperature in winter are favourable to a low mortality, provided, in all cases, the mean and absolute range be low, and the rainfall and number of wet days be high. A low temperature during the winter months is, however, favourable to a low death-rate, if accompanied by a low range, high rainfall, and number of rainy days; and, conversely, a high temperature in winter is not attended by a low mortality unless the range be also low, and the rainfall and number of wet days be high.

3. That the influence of relative humidity is somewhat doubtful, although, upon the whole, a high humidity is connected with a low mortality.

4. That the more uniform for the year the mean daily and absolute range of temperature, and amount of cloud, and the greater the humidity, rainfall, and number of rainy days, the lower will be the mortality.

5. That a year of heavy rainfall does not necessarily coincide with one of low death-rate, nor *vice versa*. The latter depends rather on the regularity or otherwise with which the rain falls from one season to another; the more uniform the fall the less extreme will be the death-rate.

6. That a heavy rainfall in summer is favourable to a low mortality during the succeeding months of winter, provided it is followed by a fairly high fall in autumn and winter; but if, after a heavy rainfall in summer, the winter becomes very dry, the death-rate will rise unusually high. On the other hand, a high rainfall in winter is beneficial only when preceded by a high fall the previous summer.

7. That a period of large number of rainy days is especially connected with one of low mortality.

8. That a year of medium amount of cloud is associated with a fairly uniform mortality. The lower it is in winter the greater will be the death-rate, especially if preceded by a period of great amount of cloud in summer.

9. That the influence of the wind, both in force and direction, is somewhat doubtful.

* * * *

The following table shows the number of deaths from phthisis in Brisbane for each month of the year :—

TABLE T.

January	17	July...	26
February	22	August	26
March...	22	September	22
April	28	October	18
May	30	November	24
June	31	December	23

Ratio per cent. for four periods of the year.

—	Jan.-Mar	April-June.	July-Sept.	Oct.-Dec.	—
Brisbane ...	21·1	30·8	25·6	22·5	100·0
Queensland ...	22·3	26·1	27·5	24·1	100·0

In Brisbane the second quarter has the highest rate, while in the whole colony the third has the highest.

TASMANIA.

In the island of Tasmania the deaths are recorded in months as follows :—

TABLE V.

Month.	No. deaths. Phthisis.	Rate per cent.
January	47	11·50
February...	28	7·00
March	29	7·25
April	26	6·50
May	35	8·75
June	31	7·75
July	29	7·25
August	38	9·50
September	33	8·25
October	36	9·00
November	31	7·75
December	38	9·50

Ratio per cent. for four periods of the year.

Jan.-Mar.	April-June	July-Sept.	Oct.-Dec.	
25·92	22·95	24·94	26·19	100·0

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WESTERN AUSTRALIA.

Ratio per cent for four periods of the year.

Jan.-Mar.	April-June	July-Sept.	Oct.-Dec.	
17·98	23·02	25·18	33·82	100·0

CONCLUSION.

Now, for the present, at least, my task is done. At some future time I intend studying the disease from other points of view, and continuing my investigations, in the hope that, by becoming acquainted with the factors which cause the loss of so many valuable lives in every colony, we may adopt measures to prevent the spread of this terrible malady, and lessen the sufferings of those who can only exclaim—

> " O, Life ! thou art a galling load,
> Along a rough, a weary road,
> To wretches such as I !"
>
> ROBERT BURNS.